

TECHNICAL NOTES

U.S. DEPARTMENT OF AGRICULTURE

BOISE, IDAHO

SOIL CONSERVATION SERVICE

TN No. 39 - Range

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Information in this Technical Note was sent out by L. F. Bredemeir, Range Conservationist, Nebraska.

WATER INTAKE RATES OF CATTLE

Published data on water intake rates of various species of farm animals is scarce. Information on water requirements of livestock is needed for planning and design of livestock water facilities. The source of the information herein is "Water Intake Rates of Cattle," by G. F. Winchester and M. J. Morris, reprint Jour. Animal Science, Vol. 15, No. 3, August, 1956.

Water intake of cattle is influenced by dry matter consumption, temperature, class, age, and activity of cattle, type of ration and humidity.

The rate of water intake per unit of dry matter ingested remains relatively constant from around 10° to 40° F. and then increases with ambient temperature at an accelerating rate.

The decline in feed and water intake of nonlactating cattle appears to begin only after the temperature reaches 90° while feed and water intake of lactating cows begins to decline at about 70°F.

Water allowances for growing heifers are greater than for maintaining mature cows because of the higher levels of feed allowed for growing animals.

Water intake during lactation and the last 2 or 3 months of pregnancy serves the maintenance requirement of the animal and the added requirement due to demands either of pregnancy or of lactation.

There was no significant difference in the average water intake per unit of dry matter ingested on rations below, at, and above maintenance levels.

Humidity had no effect at temperatures below 75°F. Above 75°F. water consumption was somewhat less at high than at low levels of relative humidity. This appears, in part, due to lower feed intake, and in part, decreased moisture vaporization at high levels of humidity.

Water intake increased with high protein rations and protein supplements heavily salted to limit amounts of protein supplement consumed. (Arizona work indicates that water intake is increased approximately 5 gallons for each lb. of salt intake - Arizona Agri. Exp. Station Bulletin No. 239.)

Wind up to 9 miles per hour did not influence water intake of dairy animals. No information is available on effect of wind above 9 miles per hour.

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The relationship between water intake and dry matter consumption was used as the basis of estimates of water intake of beef cattle. Estimates are for "total water intake." It includes water contained in the feed which does not exceed .3 to .5 gal. per day (except on very succulent pasture or silage) and can be ignored in practical calculations.

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TABLE OF DAILY WATER INTAKE RATES OF CATTLE

Month	Mean Max. Temp.	Cows			Bulls	Calves & Yearlings				Heifers (6)	
		Main- tenance (1) 1000Lb.	Nursing Calves (2) 900- 1000Lb.	Winter- ing Preg. (3) 1000- 1200Lb.	(4) 1200Lb					Wintering Pregnant	
										400Lb	600Lb
	F.	GAL	GAL	GAL	GAL	GAL	GAL	GAL	GAL	GAL	GAL
Jan.	36	3.5	11.0	6.0	7.0	3.5	5.0	6.0	6.5	6.0	
Feb.	40	4.0	11.5	6.0	7.5	4.0	5.5	6.5	6.5	6.0	
Mar.	50	4.0	12.5	6.5	8.0	4.5	6.0	7.0	7.0	6.5	
April	64	5.0	15.5	8.0	10.0	5.5	7.0	8.5	9.0	8.0	
May	73	6.0	17.0		11.0	6.0	8.0	9.5			
June	78	6.5	17.5		12.0	6.5	8.5	10.0			
July	90	9.0	16.5		17.5	9.5	13.0	15.0			
August	88	8.5	16.5		16.5	9.0	12.0	14.0			
Sept.	78	6.0	17.5		12.0	6.5	8.5	10.0			
Oct.	68	5.5	16.5	8.5	10.5	5.5	7.5	9.0	9.5	8.5	
Nov.	52	4.5	13.0	6.5	8.0	4.5	6.0	7.0	7.5	6.5	
Dec.	38	4.0	11.0	6.0	7.0	4.0	5.0	6.0	6.5	6.0	

1. Cows on maintenance ration, neither gaining or losing weight.
2. Cows nursing calves during first 3 to 4 months after parturition - peak milk production period.
3. Wintering mature pregnant cows. The weights for beginning wintering period; gains average for period.
4. Mature bulls.
5. Calves and yearling heifers and steers on good gaining ration. Requirement will be a little less for wintering if daily dry matter ingestion is minimum.
6. Wintering pregnant heifers. Weights for beginning winter period; gains average for period.